



(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
09.02.2000 Bulletin 2000/06

(51) Int Cl.7: **A61N 1/39, A61N 1/368**

(43) Date of publication A2:
31.03.1999 Bulletin 1999/13

(21) Application number: 98306453.6

(22) Date of filing: 13.08.1998

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

- **DAWSON, Albert**
Littleton, CO 80120 (US)
- **Greenhut, Saul**
CO 80013 (US)
- **Steinhaus, Bruce**
Flagstaff AZ 86001 (US)

(30) Priority: 29.08.1997 US 920836

(71) Applicant: **Pacesetter, Inc.**
Sylmar, California 91392-9221 (US)

(72) Inventors:
• Lu, Richard
CA 91320 (US)

**(74) Representative: Shaya, Darrin Maurice
Marks & Clerk,
57-60 Lincoln's Inn Fields
London WC2A 3LS (GB)**

(54) Apparatus for preventing development of atrial fibrillation

(57) An implanted pacemaker senses intrinsic atrial events and generates corresponding pacing pulses. The atrial events are also monitored for a precursor of an atrial fibrillation episode. If such a precursor is detected, the pacemaker generates therapy designed to prevent the atrial fibrillation episode. For example, the atrium and/or the ventricle may be overdriven at a pacing rate above the intrinsic rate.

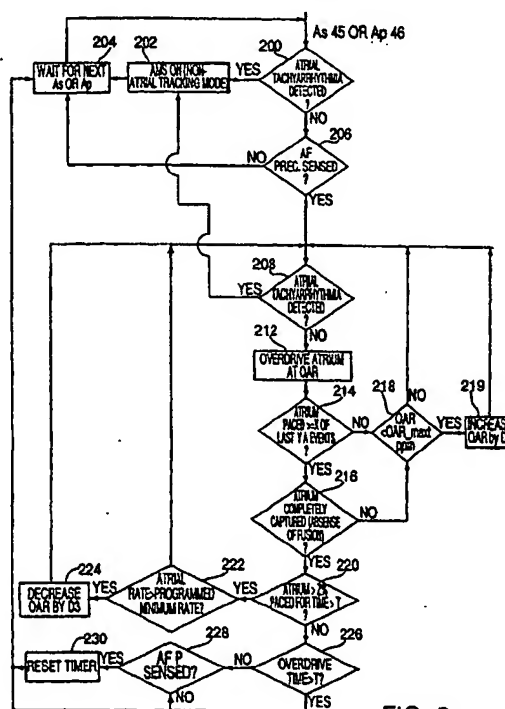


FIG. 6



European Patent
Office

PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 45 of the European Patent Convention EP 98 30 6453 shall be considered, for the purposes of subsequent proceedings, as the European search report

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 547 734 A (TELECTRONICS NV) 23 June 1993 (1993-06-23) * abstract * * column 2, line 3 - line 12 * * column 3, line 20 - line 32 * * column 7, line 18 - line 56 * * column 19, line 11 - line 49 * ---	1,6,7, 14,15, 33,34, 37,40-42	A61N1/39 A61N1/368
X	US 5 507 784 A (HILL MICHAEL R S ET AL) 16 April 1996 (1996-04-16) * column 2, line 11 - line 67 * * column 4, line 6 - line 26 * * column 7, line 30 - column 8, line 47 * * column 11, line 12 - line 28 * * claims *	1,6,7, 33,34,40	
A	--- -/--	9,10,36	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A61N
INCOMPLETE SEARCH			
<p>The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.</p> <p>Claims searched completely: 1-20, 33-42</p> <p>Claims searched incompletely:</p> <p>Claims not searched: 21-32</p> <p>Reason for the limitation of the search: Article 52 (4) EPC - Method for treatment of the human or animal body by therapy</p>			
Place of search THE HAGUE		Date of completion of the search 13 December 1999	Examiner Ferrigno, A
CATEGORY OF CITED DOCUMENTS		<p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>& : member of the same patent family, corresponding document</p>	
<p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p>			

EPO FORM 1503 03.92 (P04C07)



European Patent
Office

PARTIAL EUROPEAN SEARCH REPORT

Application Number
EP 98 30 6453

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (InCL.6)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
P,X	WO 97 40886 A (MEDTRONIC INC) 6 November 1997 (1997-11-06) * abstract * * page 7, line 15 - page 9, line 8 * * page 11, line 4 - line 16 * * claims 1,14 * ---	1	
A	YU W -C ET AL: "IS BIATRIAL PACING THE BEST MODE IN PREVENTION OF ATRIAL FIBRILLATION?" PACE - PACING AND CLINICAL ELECTROPHYSIOLOGY,US,FUTURA PUBLISHING COMPANY, INC, vol. 21, no. 4, PART 02, page 863 XP000778614 ISSN: 0147-8389 ---	2,3,8,35	TECHNICAL FIELDS SEARCHED (InCL.6)
A	EP 0 161 140 A (MEDTRONIC INC) 13 November 1985 (1985-11-13) * the whole document * ---	1-3	
A	WO 97 13550 A (ZABARA JACOB) 17 April 1997 (1997-04-17) * page 1, line 13 - line 16 * * page 10, line 21 - line 30 * * page 11, line 9 - page 12, line 12 * ---	1	
A	US 5 403 356 A (HILL MICHAEL ET AL) 4 April 1995 (1995-04-04) * abstract * * column 1, line 63 - column 2, line 40 * -----	1	

EPO FORM 1503 03.02 (P04C10)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 98 30 6453

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

13-12-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0547734 A	23-06-1993	US 5203326 A	20-04-1993
		DE 69225119 D	20-05-1998
		DE 69225119 T	17-09-1998
US 5507784 A	16-04-1996	US 5411531 A	02-05-1995
WO 9740886 A	06-11-1997	US 5683429 A	04-11-1997
		AU 1971797 A	19-11-1997
		EP 0959947 A	01-12-1999
EP 0161140 A	13-11-1985	US 4577633 A	25-03-1986
		AU 570603 B	17-03-1988
		AU 3962885 A	03-10-1985
		JP 1743962 C	15-03-1993
		JP 4034417 B	05-06-1992
		JP 60225578 A	09-11-1985
WO 9713550 A	17-04-1997	US 5700282 A	23-12-1997
		AU 7262196 A	30-04-1997
		EP 0854742 A	29-07-1998
US 5403356 A	04-04-1995	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82